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Variometric approach for displacement analysis using Galileo data: first results

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The Variometric Approach for Displacement Analysis Standalone Engine (VADASE) was successfully applied for seismological purposes using GPS observations.
The Galileo system, recently entered in the Initial Services operation phase, supplies GPS inter-operable and specific observations that can be used by VADASE. In this work the Galileo derived VADASE solutions are inspected to evaluate the impact of the European observations. A preliminary comparison with the GPS derived solutions and the state of the undergoing development of the VADASE software for the combined processing of GPS and Galileo data are also presented.
The entire repetition period of the Galileo constellation was investigated to identify the time-window with the most abundant number of satellites. Observation packages of about 15 minutes at the 1Hz observation rate were analyzed. VADASE solutions were computed using single and iono-free observations from a set of IGS-MGEX sites and from U-blox receivers. The comparison with the GPS derived solutions was carried out selecting GPS constellations with the same number of satellites and the closest PDOP values to that of the Galileo constellations inspected. The analysis was carried out using broadcast and precise orbits.
Standard statistics of the Galileo derived solutions are provided and commented. In general, the solutions are of good quality and essentially comparable to or better than the GPS derived solutions.